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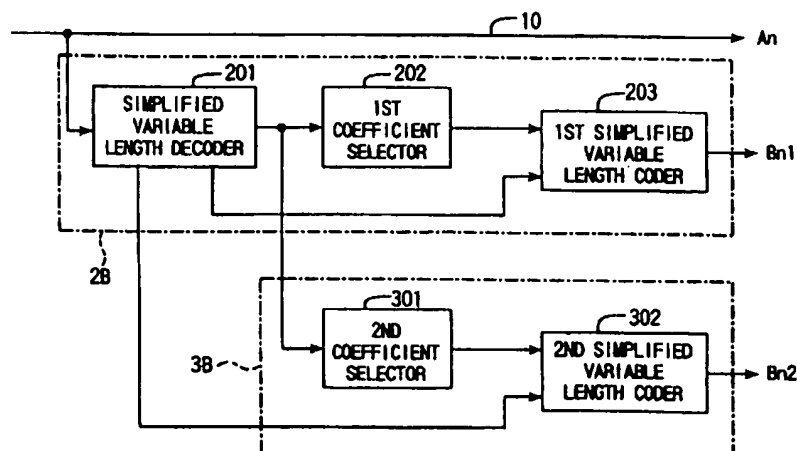
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(54) **Image conversion apparatus**

(57) An image conversion apparatus for converting and outputting the spatial resolution, temporal resolution, or image quality of compressed image data input thereto is provided. A compression-coded frame-unit image signal  $A_n$  input from the input signal line (10) is changed to real-time image data  $R_n$  by an image

decoding unit (1). A image coding unit (2) then converts the real-time image data  $R_n$  to compressed image data comprising fewer picture elements and having a different spatial or temporal resolution different from that of the real-time image data  $R_n$ .

**Fig.4**



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## EUROPEAN SEARCH REPORT

Application Number  
EP 95 10 8710

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	AYANOGLU E ET AL: "TANDEM TRANSCODING WITHOUT DISTORTION ACCUMULATION FOR VECTOR QUANTIZATION" IEEE TRANSACTIONS ON COMMUNICATIONS, vol. 40, no. 2, 1 February 1992, pages 397-403, XP000274975 * sections I, II * * figures 1-3 *	1,4,7,8	H04N7/50 H04N7/26
Y	---	2,9	
Y	US 5 208 669 A (RICHARDS JOHN W) 4 May 1993 * column 1, line 25 - column 2, line 41 *	2	
A	---	1	
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A	---	1,7	
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A	---	2,3, 7-10,12	
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A	---	10,12	
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 June 1999	Examiner Fassnacht, C
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1500 03.82 (P04C01)



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# EUROPEAN SEARCH REPORT

Application Number  
EP 95 10 8710

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 23 June 1999	Examiner Fassnacht, C
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons &amp; : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03/82 (P4/C01)



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Application Number

EP 95 10 8710

### CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

### LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☒ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- 1-10, 12, 14-25
- ☐ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:



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LACK OF UNITY OF INVENTION  
SHEET B

Application Number  
EP 95 10 8710

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. Claims: 1,2,4,7-9

Image conversion apparatus for converting compressed data, comprising a resolution converter, wherein said resolution converter is a spatial resolution converter means.

2. Claim : 3

Image conversion apparatus for converting compressed data, comprising a resolution converter, wherein said resolution converter is a temporal resolution converter means.

3. Claims: 5,6,25

Image conversion apparatus for converting compressed data, comprising a resolution converter with a decoder which comprises compensation means for generating predicted image data which is applied to adder means that continuously produces decoded image data, and comprises variable length decoder means that generates side information including motion information.

4. Claims: 10,12

Image conversion apparatus for converting compressed data to secondary compressed data  $R_n$ , comprising two resolution converters which each receive  $R_n$  as input.

5. Claim : 11

Image conversion apparatus for converting compressed data, comprising a resolution converter and comprising selecting means for manually selecting a desired degree of resolution of the resolution conversion.

6. Claim : 13

Image conversion apparatus for converting compressed data, comprising a resolution converter with a decoder which comprises compensation means for generating predicted image data which is applied to adder means that continuously produces decoded image data, and comprises a plurality of coefficient selectors each for selecting from among the conversion coefficients output by said adder means a predetermined number of conversion coefficients corresponding to a particular image resolution.



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**LACK OF UNITY OF INVENTION  
SHEET B**

Application Number  
EP 95 10 8710

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

**7. Claims: 14,15,18,19,23**

Image recompression method comprising the steps of requantizing a difference signal obtained from previous image data, reinverse quantizing said requantized image data, and adding or subtracting further data to generate a compensation signal for next image data.

**8. Claims: 16,17,20,21,22,24**

Image recompression method comprising the steps of extracting, from a conversion coefficient block, a predetermined number of coefficients.

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
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23-06-1999

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82